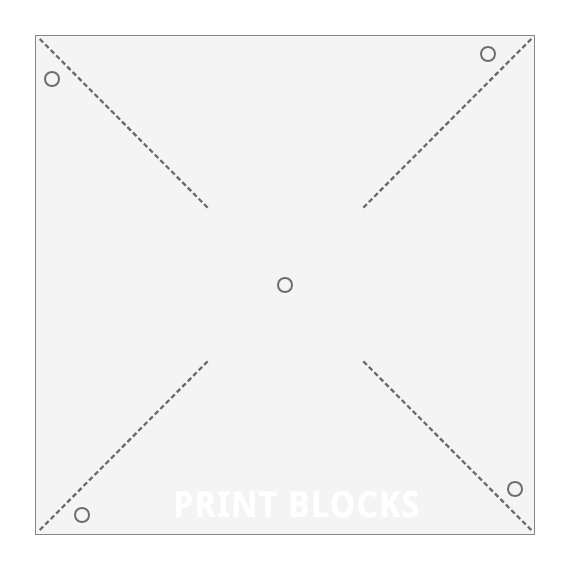
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| --- | --- | --- | --- | --- | --- | --- |
| **Lesson Plan** | | Subject: Science | | Grade: 1 | Day(s) # 1 | |
| **Standards:** PS 2.1a,b  Observe, measure, record, and compare weather data throughout the year  (e.g., cloud cover, cloud types, wind speed and direction, precipitation) by using thermometers, anemometers, wind vanes, and rain gauges.  **Lesson Focus Questions & Objective(s):**  Students will understand that pinwheels move as wind is blown on it. Students will learn that pinwheels can measure wind speed. Students will be exposed to the notion that wind can be harnessed for energy. | | | | Students will engage in:   * Independent practice * Small group work * Project work * Other: | * Partner work * Whole group * Centers | |
| **Time** | **Lesson Progression** | | **What are students doing?/What are teachers doing? (How will learning be differentiated, scaffolded, etc.?)** | | | **Materials** |
| 5 min. | **Class Starter: (Question, discussion, warm-up, etc)**  Students will be called to the rug. Students will be shown a pin wheel and asked what it is called. Tell them it is called a pin wheel. | | Students will be using prior knowledge from experiences to answer the warm up question. | | | Pre-assembled pinwheel |
| 5 min. | **Review/ Connections to prior knowledge:**  **Questions to ask:**  1. Did anyone know that wind can be used to make electricity?  2. Does anyone have ideas on how that could be possible? | | **Introductory discussion:**  Students will draw knowledge from previous lessons to answer the discussion questions | | | SmartBoard  Chart paper  Pictures of wind mills |
| 10 min. | **Direct Instruction/Whole Group Learning Activity:**  Tell students that today we will be making pinwheels that work in a very similar way to these windmills. Demonstrate how to make the pinwheel.  **1.** Cut out the square in the pinwheel pattern.  **2.** Cut along the dotted lines on the pinwheel pattern.  3. find the slit at the end of the jumbo straw  4. insert cut end of the straw through the center of the pinwheel and then through the holes of each of the wings  5. Spread out the end of the straw and lay each end flat against the paper of the pinwheel. Secure the ends of the straw with a small piece of tape.  6. Use a marking pen or crayon to add a large dot to one of the pinwheel “wings”  7. Insert the pinwheel straw into half of a jumbo straw.  **Questions to ask:**  How will we make these pinwheels spin? | | Students will be watching a demonstration on how to assemble the pinwheel. | | | Pre-punched pinwheel templates  Precut skinny straws  Jumbo straws cut into halves  Tape  Hair dryer or fan |
| 20 min. | **Potential Independent/Group Practice (Activity):**  Students will be asked to assemble the pinwheel. When they are finished, they can start to test them out in the classroom. | | **Task 1 (Struggling):**  Student will assemble pinwheel at a center with the teacher.  **Task 2 (On-Target):**  Student will make a pinwheel independently at their table and test them.  **Task 3 (Advanced):**  Student will make pinwheel and will measure how many rotations in one minute using the dot as a reference point.  During the testing portion of the lesson, the teacher will be going around and asking 2 assessment questions:  1. How is the pinwheel like an anemometer?  2. How can you tell how fast the wind is blowing? | | | Precut straws  Pinwheel template |
| 5  min. | **Closure: End share/Discusssion**  **Questions to ask:**  *1. How did you get the pinwheels to spin?*  2. *What happened when you moved them through the air? Why did that happen?*  *3. How else were you able to make the pinwheels spin?*  *4. Where else might you find moving air?* | | Students share their responses. Document the information on chart paper or the Smartboard. | | | Chart paper  smartboard |
| **Homework assigned:** Students are asked to take their pinwheels home to observe wind. A good location is near an open window or air vent. Have them come up with different ways to make it move. | | | | | |  |



Adapted from: FOSS Investigation 3: Wind Explorations part 3

The reason I chose this lesson is because it’s directly from FOSS which is what I use in my classroom. I think that it is a very good lesson to introduce the idea of wind energy; especially for such a young age. With older students, this can definitely be turned into a two day lesson with more emphasis on looking at windmills.

Professional development goals

Competency 1e - Designing Coherent Instruction

Competency 2d - Managing Student Behavior

Competency 3b - Using Questioning and Discussion Techniques

Competency 3c - Engaging Students in Learning

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 1 | 2 | 3 | 4 | Score |
| Student was unable to assemble pinwheel | Student was able to assemble pinwheel at center with teacher | Student was able to assemble pinwheel with assistance from another student | Student was able to successfully assemble pinwheel independently |  |
| Student was unable to test pinwheel | Student was able to:  Move the blades in 1 way. | Student was able to either:  1. measure rotations per minute OR  2. relate anemometers with pinwheels  3. Move the blades in 3 different ways | Student was able to: 1. measure rotations per minute  2. relate anemometers with pinwheels  3. move the blades 3 different ways (fan/hair dryer, blowing, moving it through air) |  |